

Innovative CO2 Analyzer Technology for the Eddy Covariance Flux Monitor, Phase II

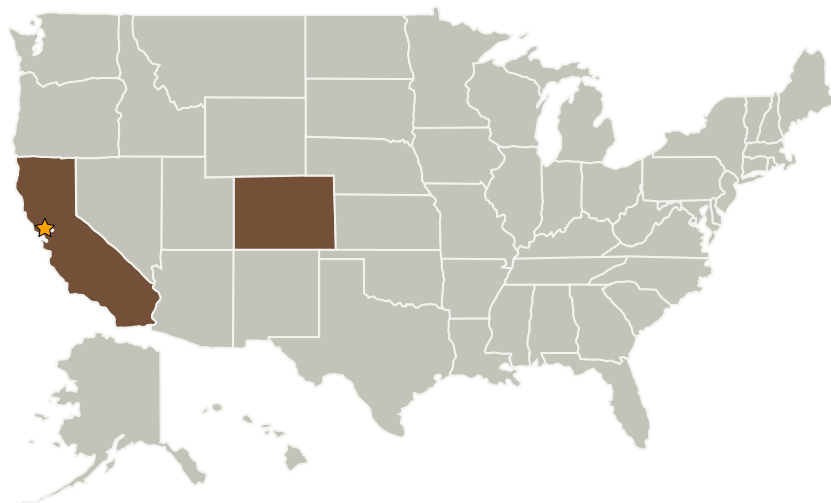
Completed Technology Project (2007 - 2010)



Project Introduction

We propose to build and evaluate NDIR Analyzers that can be used to observe Eddy Covariance Flux and Absolute Dry Mole Fraction of CO₂ from stationary and airborne platforms for a great range of environments. Both open- and close-path analyzers are to be evaluated. Phase I succeeded in building a fast CO₂ analyzer with 100 Hz modulation frequency and sensitivity within a factor of two of the target value of 100 ppb. For Phase II, we propose upgrades to the technology that are designed to reach that target sensitivity. We are further proposing individual projects within restricted airspace that will demonstrate the potential of the technologies for significant kinds of observations for Observational Climate Change. Two robotic platforms are to be utilized, the Unmanned Airborne Vehicle (UAV) and The Portable Tower Observatory (PTO). The PTO will provide fluxes and eddy spectroscopy of CO₂. The UAV will give CO₂ eddy spectroscopy that can be compared for a range of practical heights (5- 30 m) of the PTO. Samples of air are to be dried, and the site is chosen to minimize the impact of H₂O vapor on this first deployment of the technologies.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Atmospheric Observing Systems, Inc.	Supporting Organization	Industry	Boulder, Colorado

Primary U.S. Work Locations

California	Colorado
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Project Transitions

 **December 2007:** Project Start **April 2010:** Closed out

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX04 Robotic Systems
 - └ TX04.2 Mobility
 - └ TX04.2.3 Small-Body and Microgravity Mobility